

REMARKS

At the time the current Official Action was mailed, the Examiner rejected claims 1 – 30. Claims 25 and 26 have been amended to set forth the recited subject matter more clearly. Reconsideration of the application in view of these amendments and the remarks set forth below is respectfully requested.

Rejections under 35 U.S.C. § 101

The Examiner rejected claims 1-30 under 35 U.S.C. § 101, “because the claimed invention is directed to non-statutory subject matter.” Specifically, the Examiner stated:

With respect to Claims 1 22, and 27, the method and system do not produce a tangible result. It is unclear where the value for the sensitivity parameter is being stored, displayed, or used in any tangible matter.

With respect to Claim 15, the method does not produce a tangible result. It is unclear how the test result is stored, displayed, or used in any tangible manner.

With regard to Claim 25, the instructions are not embedded in a compute-related medium. *Note:* If the word encoded is changed to comprising, the 35 U.S.C. § 101 rejection would be removed.

Office Action, page 2.

Applicants respectfully traverse this rejection. As a preliminary matter, while Applicants appreciate the Guidelines for Subject Matter Eligibility provided in the Official Gazette in November, 2005 and cited by the Examiner, Applicants respectfully submit that these Guidelines were not set forth to effect change in the law or binding legal precedent, but rather to provide the Examiner's with a procedural aid in examining claims in view of current statutes and legal precedent. As explicitly set forth in the Introduction of the Guidelines, the “Examination Guidelines (“Guidelines”) are based on the USPTO's current understanding of the law and are believed to be fully consistent with binding precedent of the Supreme Court,

the Federal Circuit and the Federal Circuit's predecessor courts. These Guidelines do not constitute substantive rulemaking and hence do not have the force and effect of law. These Guidelines have been designed to assist USPTO personnel in analyzing claimed subject matter for compliance with substantive law. Rejections will be based upon the substantive law and it is these rejections which are appealable. Consequently, any failure by USPTO personnel to follow the Guidelines is neither appealable nor petitionable.” Official Gazette, November 22, 2005, Guidelines for Subject Matter Eligibility. Applicants assert that the present are fully compliant with well-established substantive law relating to 35 U.S.C. § 101, and that any rejections based thereon are completely inconsistent with statutory law, Congressional intent and binding judicial precedent.

Legal Precedent

According to the Supreme Court, Congress intended statutory subject matter to “include anything under the sun that is made by man.” *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09; 206 U.S.P.Q. 193, 197 (1980). Indeed, exclusions of statutory subject matter are limited to laws of nature, natural phenomena and abstract ideas. *See Diamond v. Diehr*, 450 U.S. 175, 185; 209 U.S.P.Q. 1, 7 (1981). Other than these specific exceptions, therefore, nearly anything man made is statutorily patentable subject matter under 35 U.S.C. §101.

In determining when process or method claims include statutory subject matter, the Supreme Court in *Diehr* stated that “[t]ransformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.” *See id.* 450 U.S. at 183-185, 209 U.S.P.Q. at 6. In addition to the Supreme Court’s transformation and reduction test, the Federal Circuit has developed a second test which may also be used to determine if a claim recites statutory subject matter, namely does

the claim produce a “useful, concrete, and tangible result.” *In re Alappat*, 31 U.S.P.Q.2d 1545, 1557 (Fed. Cir. 1994) (*en banc*). The Federal Circuit further elaborated on this second test by holding that one must look to “the essential characteristics of the subject matter, in particular, its practical utility.” *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 47 U.S.P.Q.2d 1596, 1602 (Fed. Cir. 1998).

Explaining this “useful, concrete, and tangible” test, the Federal Circuit has stated “the dispositive inquiry is whether the claim *as a whole* is directed to statutory subject matter.” *In re Alappat*, 31 U.S.P.Q.2d at 1557. Indeed, there has been no requirement from Congress, the Supreme Court, or the Federal Circuit mandating that a *specific final result* be shown for a claim to qualify under Section 101. *See id.* Rather, the Federal Circuit has specifically stated “the *Alappat* inquiry simply requires an examination of the contested claims to see if the claimed subject matter *as a whole* is a disembodied mathematical concept representing nothing more than a ‘law of nature’ or an ‘abstract idea,’ or if the mathematical concept has been reduced to *some practical application rendering it ‘useful’*.¹⁰” *AT&T Corp. v. Excel Communications, Inc.*, 50 U.S.P.Q.2d 1447, 1451 (Fed. Cir. 1999) (emphasis added). Therefore, if a claim meets either the transformation and reduction test put forth by the Supreme Court, or if the claim, read as a whole and in light of the specification, produces any useful, concrete, and tangible result, the claim meets the statutory requirements of Section 101. *See id.*

The plain and unambiguous meaning of section 101 is that any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if it meets the requirements for patentability set forth in Title 35, such as those found in sections 102, 103, and 112. *Alappat*, 33 F.3d at 1542, 31 USPQ2d at

1556; *see also* OG, November 22, 2005, Section IV(A). The use of the expansive term "any" in section 101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in section 101 and the other parts of Title 35 . . . Thus, it is improper to read into section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations. *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556; *see also* OG, November 22, 2005, Section IV(A).

Of course, Federal courts have held that 35 U.S.C. Sec. 101 does have certain limits. First, the phrase "anything under the sun that is made by man" is limited by the text of 35 U.S.C. Sec. 101, meaning that one may only patent something that is a machine, manufacture, composition of matter or a process. See, e.g., *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556; *In re Warmerdam*, 33 F.3d 1354, 1358, 31 USPQ2d 1754, 1757 (Fed. Cir. 1994). Second, 35 U.S.C. Sec. 101 requires that the subject matter sought to be patented be a "useful" invention. Accordingly, a complete definition of the scope of 35 U.S.C. Sec. 101, reflecting Congressional intent, is that any new and useful process, machine, manufacture or composition of matter under the sun that is made by man is the proper subject matter of a patent. The subject matter courts have found to be outside of, or exceptions to, the four statutory categories of invention is limited to abstract ideas, laws of nature and natural phenomena.

Summary Relating to Certain Embodiments of Applicants' Invention

While a detailed analysis of the claims in light of the present specification is unnecessary in the present analysis under 35 U.S.C. § 101, Applicants provide the following summary to aide the Examiner in understanding and fully appreciating the statutory subject matter recited in the instant claims.

Generally, the present application is directed to a data monitoring system that may be employed to monitor various types of measured data. Paragraph 20, lines 1-6. The data monitoring system 10 may monitor a data stream 12 from any one of a number of data producing systems such as computer-related systems, disk drives, web servers, call centers, traffic systems, car engines, patients, stock market, or citation indices, for example. Paragraph 20, lines 6-13. The data stream 12 may generally include a sequence of temporally ordered data values. Paragraph 21, lines 2-3. In accordance with embodiments of the present invention, the data stream 12 is partitioned into a training window 16 and a testing window 18. Paragraph 28, lines 1-2. The training window 16 is defined as a contiguous portion of the data stream 12 that is used to train a detector 22 configured to detect something notable or interesting about the data stream 12, such as a change. Paragraph 29, lines 1-3. The trainer 20 uses the data in the training window 16 to generate a number of sequences 24 and uses the sequences 24 to determine an optimal value for sensitivity parameter 26 to be used to parameterize the detector 22. Paragraph 29, lines 4-7. The sensitivity parameter 26 might be a threshold, for instance, establishing a level that is used to trigger an alarm 28 if the monitored data reaches the value of the sensitivity parameter 26. Paragraph 29, lines 7-9. The value established for the sensitivity parameter 26 is then delivered to the detector 22 such that the detector 22 can use the sensitivity parameter 26 to determine whether the data in the testing window 18 exhibits the type of behavior that the detector 22 should detect. Paragraph 30, lines 1-3. By establishing a value for the sensitivity parameter 26 and setting the detector 22 to detect changes correlative to the sensitivity parameter 26, the detector is “trained.” Paragraph 30, lines 3-6.

Once trained by determining a value for a sensitivity parameter 26 using the sequences 24 generated from the data training window 16, the detector 22 monitors the data contained within the testing window 18 to determine whether the data in the testing window 18 contains the sort of event or exemplify the sort of property the detector 22 is designed to detect.

Paragraph 33, lines 1-8. As can be appreciated, the detector 22 is configured to detect “something” in the data stream 12. Paragraph 34, lines 1-2. That is to say, the detector 22 is configured to monitor the data stream 12 to detect something of interest, such as the occurrence or non-occurrence of a notable event or the implication that the data producing system 14 is in a state of interest. Paragraph 34, lines 2-4. Most commonly, the detector 22 will be configured to detect that a salient change has occurred in the data stream 12 – either that a salient change occurred within the testing window 18 or that the data contained in the testing window 18 is saliently different from the data contained in the training window 16.

Paragraph 34, lines 4-8.

In summary, embodiments of the present system are directed to a system configured to receive a data stream. The system includes a trainer which samples a first portion of the data stream (e.g. in a “training window”) to train the system to detect events, such as changes, in a second portion of the data stream (e.g. in a “testing window”). That is, the present system uses a first portion of the data stream to train itself to detect something in a second portion of the data stream.

Accordingly, independent claim 1 recites a method comprising “receiving a data stream comprising a plurality of temporally ordered data points,” “generating a plurality of sequences from a first portion of the data stream,” and “training a detector by determining a value for a sensitivity parameter using the plurality of sequences.” Independent claim 15 recites a method

comprising “training a detector using a plurality of sequences generated from a first portion of a data stream, wherein the detector is configured to detect an interesting event in the data stream,” and “testing a second portion of the data stream using the trained detector.”

Independent claim 22 recites a system comprising “a trainer configured to generate a plurality of sequences from a first portion of a data stream and further configured to determine one or more sensitivity parameters based on the sequences,” and “a detector configured to detect an interesting event in the data stream using the one or more sensitivity parameters.”

Independent claim 25 recites a computer-readable medium encoded with computer instructions for “generating a plurality of sequences from a first portion of a data stream,” “determining a sensitivity parameter using the plurality of sequences,” and “training a detector to detect an interesting event in the data stream using the sensitivity parameter.” Independent claim 27 recites a system comprising “means for generating a plurality of sequences from a first portion of a data stream,” “means for determining a sensitivity parameter based on the plurality of sequences,” and “means for detecting an interesting event in a second portion of the data stream using the sensitivity parameter.”

Claims 1-30 are Fully Compliant with 35 U.S.C. §101

On their faces, each of the present independent claims explicitly recites one of the four categories explicitly identified under 35 U.S.C. § 101 as being patentable subject matter. Further, in accordance with the test set forth by the Federal Circuit and in accordance with the Guidelines provided in the Official Gazette, it is clear that each of the claims as a whole recite useful subject matter that has practical real-world application. That is, the recited subject matter produces a “useful, concrete and tangible result.”

With specific regard to the “Useful, Concrete and Tangible Result” test, the Official Gazette provided the following useful Guideline:

In State Street, the Federal Circuit examined some of its prior section 101 cases, observing that the claimed inventions in those cases were each for a "practical application of an abstract idea" because the elements of the invention operated to produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. For example, the court in State Street noted that the claimed invention in *Alappat* "constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced 'a useful, concrete and tangible result' - smooth waveform." Id. Similarly, the claimed invention in *Arrhythmia* "constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete and tangible thing - the condition of a patient's heart." Id.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result is "useful, tangible and concrete." The Federal Circuit further ruled that it is of little relevance whether a claim is directed to a machine or process for the purpose of a Sec. 101 analysis. AT&T, 172 F.3d at 1358, 50 USPQ2d at 1451.

Official Gazette, November 22, 2005, Guidelines for Subject Matter Eligibility, Annex II, Section B(ii)

As with the claims *Alappat* and *Arrhythmia*, each of the present claims clearly recite a useful, concrete and tangible result. For instance, independent claim 1 recites affirmative steps of receiving a data stream, generating sequences from a portion of the data stream and training a detector using the plurality of sequences. Clearly, a useful, concrete and tangible result of such a process is that it produces a trained detector. Similarly, claim 15 recites training a detector using a plurality of sequences generated from a first portion of a data stream and testing a second portion of the data stream using the trained detector. Again, the claim as a whole clearly produces a useful, concrete and tangible result – not only a trained detector,

but tested data. Independent claim 22 recites a trainer configured to generate sequences and produce sensitivity parameters and a detector configured to detect an interesting event using the sensitivity parameters. Independent claim 27 recites means for generating sequences, determining a sensitivity parameter and detecting an interesting event using the sensitivity parameter. As with independent claims 1 and 15, it is clear that each of these claims as a whole recite a useful, concrete and tangible result.

Applicants respectfully submit that all pending claims are well-within the scope of statutory subject matter which is patentable under 35 U.S.C. § 101. Each of the claims clearly falls within one of the four enumerated categories and none of the claims fall within the identified exceptions relating to a law of nature, a natural phenomenon or an abstract idea. Accordingly, each of the claims is clearly produces a useful, concrete and tangible result. Any conclusion to the contrary is clearly inconsistent with well-established statutory law, Congressional intent and binding judicial precedent, as well as the Guidelines promulgated by the Patent Office. As such, Applicants strongly urge the Examiner to reconsider and withdraw the present rejections under 35 U.S.C. § 101 such that the application can proceed to issuance without any further unnecessary and protracted delay.

Applicants note that the Examiner's inquiry regarding the recited sensitivity parameter and the test results is irrelevant to the determination under 35 U.S.C. § 101. However, Applicants would like to point out that as recited in claims 1, 22 and 27, the sensitivity parameter is used to train the detector. A lengthy and detailed discussion of how the detector is trained using the sensitivity parameter can be found in Applicants' specification. Further, a summary of how the sensitivity parameter is used to train the detector can be found above in the present response. With regard to claim 15, while the claim recites testing data using the

trained detector, claim 15 does not recite "test results," nor is it relevant as to how any test results would be stored, displayed or used. The fact that the detector is trained and that the trained detector is used to test data is more than enough to satisfy the requirements under 35 U.S.C. § 101.

Claim 25 has been amended in accordance with the Examiner's suggestion. As stated by the Examiner, this amendment should be sufficient to overcome all present rejections. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection and allowance of claims 25 and 26.

Conclusion

Applicants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,



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